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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/750,004

12/30/2003

Yong Woo Shin

2013P149

9937

8791

7590

11/29/2005

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EXAMINER

JOHNSTON, PHILLIP A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

5/2

<b>Office Action Summary</b>	Application No. 10/750,004	Applicant(s) SHIN ET AL.	
	Examiner Phillip A. Johnston	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7-1-2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/> Paper No(s)/Mail Date <u>3-2004; 8-2005</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/> Paper No(s)/Mail Date. _____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____.</p> |
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**Detailed Action**

**Claims Rejection - 35 U.S. C. 102**

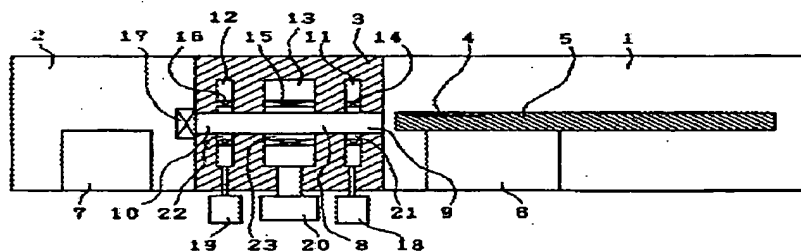
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

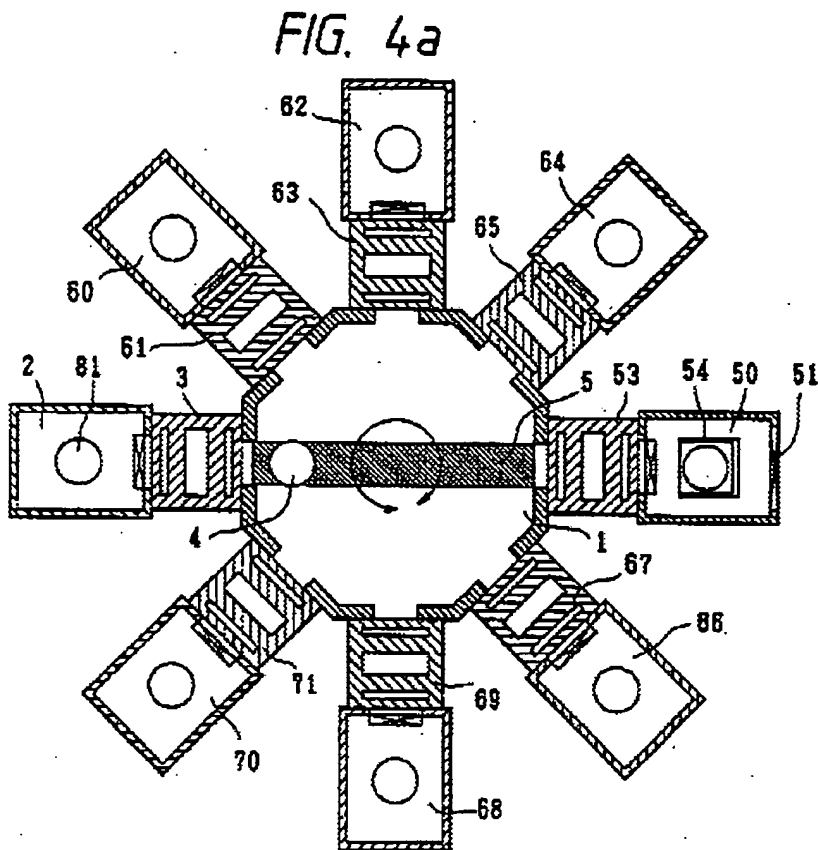
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102 (b) as being clearly anticipated by Kawamura, U.S. Patent Pub. No. 5,601,686.

Kawamura (686) discloses a multi-chamber system for processing plural wafers having plural process chambers where each process chamber performs a number of semiconductor lithography processes including an electron beam lithography process. Process chambers are capable of applying various processes and are disposed around the transport chamber 1 by way of the interface means 3 so that a substrate can be smoothly transported between the process chambers; i.e., a cluster. Process chambers 2, 60, 62, 64, load-lock chamber 50, process chambers 66, 68 and 70 are connected to transport chamber 1 including a transfer means 5, and wafer stage 7, as recited in claim 1. See Column 3, line 30-48; Column 9, line 57-67; Column 10, line 1-12; and Figure's 1 and 4a below.

**FIG. 1**





***Claims Rejection – 35 U.S.C. 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. No. 5,601,686 to Kawamura, and Hashiguchi, U.S. Patent No. 6,461,986.

Kawamura (686) as applied above discloses nearly all the limitations of claims 1-4, but fails to teach;

- (a) Pre-bake and post-bake chambers, as recited in claim 2;
- (b) An alignment chamber, as recited in claim 3; and
- (c) A cooling chamber, as recited in claim 4.

However, Hashiguchi (986) discloses the use of aligner 4, pre-bake chambers 23 and 24; post-bake chambers 28 and 29; and cooling units 21,26, and 27, as recited in claims 2-4. See Column 7, line 6-58.

Therefore it would have been obvious to one of ordinary skill in the art that the electron beam lithography system of Kawamura (686) can be modified to use the pre-bake, post-bake, and cooling process chambers of Hashiguchi (986), to provide means for carrying a wafer into/out of a processing station in which various kinds of processing and treatment units each for performing predetermined processing or treatment steps, thereby providing a system structured to process a plurality of wafers concurrently at the same time..

5. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (686) and Nakasuji, U.S. Patent No. 6,593,152.

Kawamura (686) as applied above fails to teach the use of ;

- (a) A Robot wafer handler/loader, as recited in claim 5;
- (b) A vibration isolator, as recited in claims 6 and 7;
- (c) Slot valves and flexible adaptors, as recited in claims 8 and 9; and

(d) A vacuum system for maintaining pressure in the lithography chambers, as recited in claim 10.

However, Nakasuji (152) discloses;

(a) A Robot wafer handler/loader, as recited in claim 5. See Column 7, line 51-65; and Column 12, line 62-65;

(b) Vibration isolator 37 mounted on base frame 36, as recited in claims 6 and 7. See Column 9, line 31-54;

(c) Gate (slot) valves 27, 45, and 46, and Flexible pipes (adaptors) 21-2, 27-2, as recited in claims 8 and 9. See Column 10, line 38-69; and Column 30, line 27-53 respectively;

(d) A vacuum system for maintaining atmospheric pressures in the test chambers at  $10^{-6}$  torr, as recited in claim 10. See Column 9, line 50-67; and Column 10, line 1-16.

Therefore it would have been obvious to one of ordinary skill in the art that the electron beam lithography system of Kawamura (686) can be modified to use the lithography manufacturing equipment of Nakasuji (152), to provide a robot for automatic wafer loading; a vibration isolator to block vibrations from the floor; a vacuum system for maintaining a desired pressure in each chamber; and a gate valve for selectively blocking a communication between adjoining chambers; thereby providing a loading chamber structure with improved throughput.

### ***Conclusion***

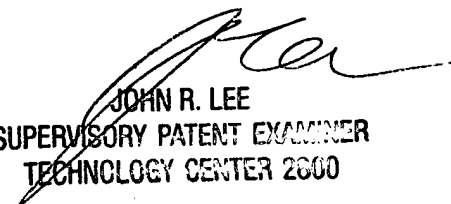
6. Any inquiry concerning this communication or earlier communications should be

directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

November 22, 2005

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600